# POWERTECH

## IP67 Solar Charge Controller

### MP-3756, MP-3758

### User Manual

## 1. General Information

Adopts the most advanced digital technique and operates fully automatically, it is ideal for extreme environments with corrosion, dust, water etc and has various unique functions：

- Electronic protection: Over charging, over discharging, overload, short circuit and reverse protection of solar module
- High efficient Series PWM charging, increase the battery lifetime and improve the solar system performance
- Widely used, automatically recognize day/night
- Battery LED indicate battery status
- Industrial design, wide application range
- Digital tube menu, only one key solve all setting simply
- Intelligent timer function with 1～13 hours option
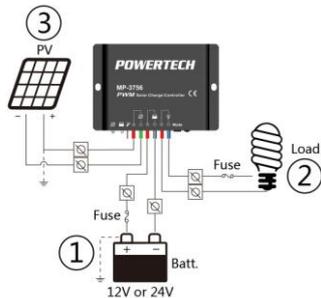- IP67 protection

## 2. Features and Mounting



Figure1 Mounting

| ① | Charging Status LED indicator | ⑥ | Load Terminals |
| ② | Battery Status LED indicator | ⑦ | Digital tube |
| ③ | Temperature Sensor | ⑧ | Key |
| ④ | Solar Module Terminals | ⑨ | Aluminum housing |
| ⑤ | Battery Terminals | ⑩ | Mounting hole Φ5 |

● Mounting

1）Connect components to the charge controller in the sequence as shown above picture and pay much attention to the "+" and "-". Always power the battery firstly.

2）After power the battery, check the battery indicator on the controller, it will be green. If it's not green, please refer to chapter 4.

3）The battery fuse should be installed as close to battery as possible. The suggested distance is within 150mm.

## 3. Indicators Description and Operation

### 1) Indicator Status Description

| Charging Status LED indicator | Green | On Solid | Normal |
| --- | --- | --- | --- |
| | Green | Fast Flashing | Over voltage |
| Battery Status LED indicator | Green | On Solid | Normal |
| | Green | Slowly Flashing | Full |
| | Orange | On Solid | Under voltage |
| | Red | On Solid | Over discharged |
| Radix Point of Digital tube (Load indicator) | Red | On Solid | Load ON |
| | Red | Slowly Flashing | Over Load |
| | Red | Fast Flashing | Short Circuit |

### 2) Operation



Digital tube Key

The digital tube display the load work mode, please refer to the correspondence table of Load Work Mode & LED digital tube value. Pressing the key to configure the parameter, please refer to the below configuration method:
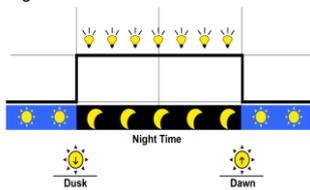
1) After Powering on , disconnect the PV or connect the PV(Voltage<5V) , the light of the digital tube point go on; Connect the PV(Voltage>6V) ,the light of the digital tube point go off.

2) The key can be used to operate switching on/off the load (Manual control) or clearing the faults

3) Keeping pressing the button over 5S, It will go to the parameter in browsing mode which can cycle through the parameter item by clicking the button ,after the light of the digital tube point going on.

4) After the digital tube displaying the value what you want to configure, releasing the key and waiting 15S, Digital Tube stop flashing, then the configuration is successful.
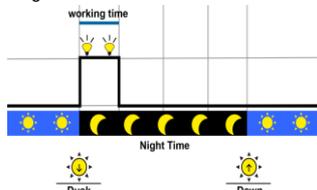
➢ **Load mode**

● Manual Control：Control the load via the button.

● Light ON/OFF      ● Light ON + Timer



**Note: In the mode of Light ON/OFF and Light ON/Timer, the Load is turned on after 10Min. delay.**

● Test Mode (Default)：Test Mode is as same as Light Control Mode but no delay.

➢ **The correspondence table of Load Work Mode & LED digital tube value**

| Value | Working mode | Value | Working mode |
|-------|-------------|-------|-------------|
| 0 | Light ON/OFF | 0. | Light ON + 8 hours |
| 1 | Light ON + 1 hours | 1. | Light ON + 9 hours |
| 2 | Light ON + 2hours | 2. | Light ON + 10 hours |
| 3 | Light ON + 3hours | 3. | Light ON + 11 hours |
| 4 | Light ON + 4 hours | 4. | Light ON + 12 hours |
| 5 | Light ON + 5 hours | 5. | Light ON + 13 hours |
| 6 | Light ON + 6 hours | 6. | Manual Control |
| 7 | Light ON + 7 hours | 7. | Test Mode |

# 6. Technical Specifications

| Model | MP-3756 | MP-3758 |
|-------|---------|---------|
| Nominal system voltage | 12/24VDC Auto | |
| Max. PV input voltage | 50V | |

| Rated current | 10A | 20A |
|---------------|-----|-----|
| Equalize Voltage | 14.8V(12V);29.6V(24V) | |
| Boost Voltage | 14.4V(12V);28.8V(24V) | |
| Float Voltage | 13.7V(12V);27.4V(24V) | |
| Low Voltage Reconnect Voltage | 12.6V(12V);25.2V(24V) | |
| Low Voltage Disconnect Voltage | 11.2V(12V);22.4V(24V) | |
| Self-consumption | 12V：≤4.58mA；24V：≤6.01mA | |
| Temperature compensation coefficient | -5mV/℃/2V（25℃） | |
| Working temperature | -35℃～+55℃ | |
| Enclosure | IP67 | |
| Overall dimension | 108.5mm×75mm×25.6mm | |
| Mounting dimension | 100.5mm | |
| Mounting hole size | Φ5 | |
| Power cable | PV/BAT/LOAD:4.0mm$^2$ | PV/BAT/LOAD:6.0mm$^2$ |
| Net weight | 410g | 435g |

**Any changes without prior notice!**